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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,064	12/21/2001	Satoshi Seo	12732-087001	8559

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EXAMINER

THOMPSON, CAMIE S

ART UNIT PAPER NUMBER

1774

DATE MAILED: 09/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/026,064	SEO ET AL.	
	Examiner	Art Unit	
	Camie S Thompson	1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed June 30, 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-128 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-128 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. Applicant's amendment and accompanying remarks filed June 30, 2004 have been acknowledged.
2. Examiner acknowledges the submitted Information Disclosure Statement. The form PTO-1449 has been initialed and signed.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Tamano et al., U. S. Patent Number 6,150,042.

Tamano discloses an electroluminescent device used for display having excellent hole-injecting capability and durability as per instant claim 6 (see column 1, lines 5-11). The reference discloses that the device is formed by a light-emitting layer or a plurality of organic compound thin layers including the light-emitting layer between a pair of electrodes composed of a cathode and an anode. Column 78, lines 4-46 of the reference discloses hole-transporting materials that can be used together such as aromatic tertiary amines and copper phthalocyanine as per instant claims 1-5. Additionally, the reference discloses that the light-emitting material and the dopant can be used in combination and can comprise a combination of metal complexes such as

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benzoquinoline complexes as per the instant claims (see column 77, lines 19-44). Column 78, lines 47-61 of the reference disclose that the electron-transporting layer can have a combination of organic compounds such as triazole and oxadiazole derivatives as per the instant claims. It is disclosed by Tamano that phosphor dopants are added to promote luminescence from a triplet state (see abstract and column 2, lines 29-34).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 25-128 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamano et al., U.S. Patent Number 6,150,042 in view of Baldo et al., U.S. Patent Number 6,097,147.

Tamano discloses an electroluminescent device used for display having excellent hole-injecting capability and durability (see column 1, lines 5-11). The reference discloses that the device is formed by a light-emitting layer or a plurality of organic compound thin layers including the light-emitting layer between a pair of electrodes composed of a cathode and an anode. Column 78, lines 4-46 of the reference discloses hole-transporting materials that can be used together such as aromatic tertiary amines and copper phthalocyanine as per the instant claims. Additionally, the reference discloses that the light-emitting material and the dopant can be used in combination and can comprise a combination of metal complexes such as benzoquinoline

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complexes as per the instant claims (see column 77, lines 19-44). Column 78, lines 47-61 of the reference disclose that the electron-transporting layer can have a combination of organic compounds such as triazole and oxadiazole derivatives as per the instant claims. It is disclosed by Tamano that phosphor dopants are added to promote luminescence from a triplet state (see abstract and column 2, lines 29-34). Tamano does not disclose the use of a blocking layer in the device. Baldo teaches a light-emitting device comprising a substrate, an anode, a hole transporting layer, an emission layer, a blocking layer, an electron-transporting layer and cathode (see Figure 2). In column 4, lines 14-24 of the Baldo reference, it is disclosed that the materials used in the device include any suitable materials which fulfill the purpose(s) of the respective layers. The blocking layer is used to prevent the diffusion of excitons from the emission layer into the electron-transporting layer. Therefore, it would have been obvious to one of ordinary skill in the art to use a blocking layer that blocks the diffusion of excitons from the emission layer to electron transporting layer in order to enhance the efficiency of the device (see Baldo reference: column 2, lines 23-26).

Neither reference discloses the total mass of the hole-transporting layer. The weight of the electron and hole transporting layers affects the increased energy injected into the luminescent layer. Discovery of optimum values of result effective variables only involves routine skill in the art in re Boesch, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980). Therefore, it would have been obvious to have a total mass of the electron and hole transporting layers be within the range of 10% to 90% in order to obtain color emission change which is caused by increased energy injected into the luminescent region.

Response to Arguments

7. Applicant's arguments filed June 30, 2004 have been fully considered but they are not persuasive. Applicant argues that the Tamano reference does not disclose the or suggest all of the elements in the instant claims. The Tamano reference discloses hole-transporting materials that can be used together such as aromatic tertiary amines and copper phthalocyanine. Inherently, copper phthalocyanine has a different ionization potential, hole mobility, electron affinity and electron mobility than that of an aromatic tertiary amine. Inherently, one compound is going to have a larger ionization potential, hole mobility, electron affinity and electron mobility than the other. Applicant argues the combination of the Tamano and Baldo references is improper. Both Tamano and Baldo disclose organic electroluminescent devices. Baldo discloses an organic light emitting device that comprises a substrate, anode, a hole transporting layer, an emission layer, an electron transporting layer and cathode, as does Tamano. Baldo discloses the use of a blocking layer to block the diffusion of excitons from the emission layer to the electron transporting layer in order to enhance the efficiency of the device. Baldo and Tamano are analogous art and are not without motivation. Applicant argues that the blocking layer of the Baldo reference does not have an energy difference between the highest occupied molecular orbit and a lowest unoccupied molecular orbit in the blocking material is larger than the energy difference between the highest occupied molecular orbit and a lowest unoccupied molecular orbit in a material contained in the luminescent layer. The Baldo reference discloses that the materials used in the device include any materials that suitable to fulfill the purpose(s) of the respective layers. The Baldo reference

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discloses the optimization of the device by using materials that will suit various purposes such as energy level differences (see column 4, lines 14-24). The rejections are maintained.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena L Dye, can be reached at (571) 272-3186. The fax phone number for the Group is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



RENA DYE
SUPERVISORY PATENT EXAMINER
A.U. 1774